

CLAIMS

2       1. A toggle bolt device comprising;

3           a) an elongated body having first and second end portions  
4 and a central, longitudinal bore that is at least partially  
5 threaded, the first end portion of the body having a socket and  
6 a plurality of circumferentially spaced apart slots that  
7 communicate with the socket;

8           b) a shaft that extends through the bore and having  
9 respective first and second end portions communicating with the  
10 body end portions, the shaft being at least partially externally  
11 threaded and rotatable relative to the body;

12           c) a plurality of locking members that are attached to the  
13 shaft at the first end portion of the body, the locking members  
14 being attached to the first end portion of the shaft;

15           d) the locking members being movable between extended and  
16 retracted positions responsive to a rotation of the shaft, the  
17 locking members extending radially beyond the outer surface of  
18 the body in the extended position and being contained within the  
19 body at the socket in the retracted position; and

20           e) a nut that is connectable to the body at the partially  
21 threaded portion.

1       2. The toggle bolt of claim 1 wherein there are at least three  
2 locking members.

1       3. The toggle bolt of claim 1 wherein the locking members have  
2 curved outer surfaces.

1       4. The toggle bolt of claim 1 wherein the body has curved  
2 camming surfaces at the socket that are positioned to guide  
3 movement of the locking members as they travel between the  
4 extended and retracted positions.

1 5. The toggle bolt of claim 1, further comprising a plate  
2 attached to the shaft, the locking members being mounted on the  
3 plate.

1 6. The toggle bolt of claim 5 wherein the shaft has a first  
2 threaded portion that connects with the plate and a second  
3 threaded portion that engages the body.

1 7. The toggle bolt of claim 1 wherein the shaft has a tool  
2 receptive portion at one end thereof that enables rotation of the  
3 shaft relative to the body.

1 8. The toggle bolt of claim 1 wherein the nut engages the body  
2 generally opposite the locking members.

1 9. The toggle bolt of claim 1 wherein the shaft moves linearly  
2 relative to the central longitudinal axis of the body when the  
3 shaft is rotated.

1 10. A fastener for joining two members together, each member  
2 having an opening therethrough of a selected diameter,  
3 comprising;

4 a) an elongated body having first and second end portions  
5 and a central, longitudinal bore that is partially threaded, the  
6 first end portion of the body having a socket and a plurality of  
7 circumferentially spaced apart, radially extending slots that  
8 communicate with the socket;

9 b) a shaft that extends through the bore and having  
10 respective first and second end portions communicating with the  
11 body end portions, the shaft being partially externally threaded  
12 and rotatable relative to the body, the partially externally  
13 threaded portion of the shaft engaging the threaded portion of  
14 the bore;

15           c)    a plurality of locking members that are attached to the  
16    shaft at the first end portion of the body, the locking members  
17    being attached to a plate mounted to the first end portion of the  
18    shaft;

19           d)    the locking members being movable between extended and  
20    retracted positions responsive to a rotation of the shaft, the  
21    locking members extending radially beyond the outer surface of  
22    the body and the selected diameter in the extended position and  
23    being contained within the body at the socket and inside the  
24    selected diameter in the retracted position;

25           e)    a nut that is connectable to the body at the partially  
26    threaded portion.